

Morley Road Dam Modification and Stream Restoration Project



Quick Facts:

Natural flow restored: 770 linear feet

Stream channel and floodplain restored: 603 linear feet

Riparian area restored: 2.24 acres

Area treated to control invasive species: 0.50 acres

Background:

The Morley Road dam just north of Ridgewater Drive in Concord Township was built around 1938 as part of a Works Progress Administration project to construct a reservoir (known as L'Alouette Plume Lake), presumably to support local nursery industry. In 1960 the Ohio Department of Transportation (ODOT) constructed State Route (SR) 44 and an access slip ramp immediately east of Morley Road and the dam. The SR 44/ SR 84 interchange construction resulted in the filling and raising of Morley Road in the section over the dam, and placed the structure under the Ohio Dam Safety Program's (ODSP) jurisdiction (inspection program did not begin until the 1970s) as a Class III dam.

In fall 2013, Lake County Engineers discovered an active sinkhole and a collapse in the spillway culvert and contacted the Ohio Department of Natural Resources (ODNR) Division of Soil and Water Resources (DSWR). ODNR DSWR determined that the sinkhole threatened the safety of Morley Road and the dam, and requested that the dam owners either bring the dam into full compliance with ODNR's dam safety laws, drain the lake and remove the dam, or lower the dam embankment to become exempt from ODNR regulations. The dam and lake owners, as well as Lake County and ODOT, expressed their support for draining the lake, removing the dam and restoring natural stream flow. In 2015 Lake County secured an Ohio Environmental Protection Agency (EPA) Section 319 grant to restore the dewatered lake back to a natural stream. Matching funds for the project were provided by ODOT through their system preservation funds to modify the dam structure and install a new culvert.



December 2014. The former L'Alouette Plume Lake was 2.4 acres in size and impounded an unnamed headwater stream to Kellogg Creek, a tributary to the Lower Grand River.



April 2015. Prior to dewatering the lake, Chagrin River Watershed Partners, Inc. coordinated a fish capture and relocation with Cleveland Metroparks. 1,455 fish were transferred to Cleveland Metroparks recreational fishing ponds.



April 2015. Dewatered lake with stream channel beginning to naturally establish.



July 2015. The dam modification contractor bored a new culvert from the other side of Morley Road to allow for natural stream flow.

How was the stream restored?

After the lake was dewatered, a stream channel began to naturally establish, possibly in the same location that it historically flowed. An adaptive approach was used to stabilize the channel and riparian areas to reduce continued erosion of the unstable sediments in the former lake bed. A natural recovery of the stream would have likely been slow and potentially damaging to the downstream ecosystem.

A series of riffles and a drop inlet structure were constructed to stabilize the channel, provide grade control, and prevent further erosion of the channel sediments. The riffles and associated pools were also constructed to improve habitat for macroinvertebrates. The streambanks and floodplain benches were planted with native plants to provide additional stabilization. Beyond the stream channel, "islands" of native floodplain forest species were planted and invasive species were controlled.

In total, more than 1,200 native live stakes, posts, and containerized trees were installed, including the following: buttonbush, sandbar willow, silky dogwood, sycamore, redosier dogwood, cottonwood, pussy willow, black willow, silky willow, speckled alder, and peachleaf willow. Native herbaceous seed was also installed along the stream channel, and included the following species: fox sedge, big bluestem, deertongue, Virginia wildrye, and switchgrass.



This project was financed in part or totally through a grant from the State of Ohio Environmental Protection Agency and the United States Environmental Protection Agency under the provisions of Section 319(h) of the Clean Water Act. Additional funding was provided by the Ohio Department of Transportation.